

# Impact of the new UK licensing law on emergency hospital attendances: a cohort study

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**Objectives:** To assess the effect of the new UK alcohol licensing law on overnight attendances to the emergency department.

**Methods:** A retrospective cohort study at the emergency department of St Thomas' Hospital, London over 2 months, one before and one after the introduction of the new legislation. All people over the age of 16 years who attended the emergency department between 21:00 and 09:00 during the two study periods (March 2005 and March 2006) were included. An alcohol-related attendance was defined as having occurred if there was documentation of alcohol consumption before attendance, or of alcohol intoxication in relation to the patient's physical examination or final diagnosis. The primary outcome measure was change in the number and percentage of alcohol related attendances to the emergency department between the two study periods. Secondary outcome measures, compared between the two study periods, were number and percentage of alcohol-related attendances as a consequence of assault, and of injury; and number and percentage of alcohol-related attendances resulting in admission to hospital.

**Results:** In March 2005 there were 2736 overnight attendances to the ED, of which 79 (2.9%) were classified as alcohol related. In comparison, in March 2006 there were a total of 3135 overnight attendances, of which 250 (8%) were alcohol related, representing a significant increase ( $p < 0.001$ ). There were also significant increases in percentage of alcohol related attendances as a consequence of injury ( $p < 0.001$ ) and assault ( $p = 0.002$ ); and in admission rates for alcohol related attendances ( $p < 0.001$ ) between the two study periods.

**Conclusions:** Overnight alcohol related emergency attendances to St Thomas' hospital increased after the introduction of new alcohol licensing legislation. If reproduced over longer time periods and across the UK as a whole, the additional burden on emergency care could be substantial.

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The European Union (EU) is the heaviest drinking region in the world. Within the EU, UK adults have the third highest rates for binge-drinking.<sup>1</sup> Furthermore, around 23 000 incidents of alcohol related violence occur every week in the UK,<sup>2</sup> a cause of major concern for the police, healthcare workers, and society. In addition to violence related injuries, alcohol represents a major burden for UK health services in general, and in emergency departments (EDs) in particular.<sup>3</sup> Intoxicated patients are more difficult to manage effectively and often consume more resources than those who are sober. As increased levels of alcohol-related morbidity have been directly associated with increased alcohol availability,<sup>4</sup> the introduction in November 2005 of the UK Government's Licensing Act 2003, permitting 24 h drinking, has been a major cause for concern among doctors.<sup>5</sup> The new Licensing Act was specifically designed to prevent crime and disorder and to enhance public safety, by reducing the amount of binge drinking and allowing pubs and clubs to stagger closing times.<sup>6</sup> However, fears have been expressed that the new Licensing Act could have exactly the opposite effect. As yet there has been no systematic attempt to investigate the direct effects of these alcohol licensing changes on the number, or type, of alcohol related ED attendances. We therefore conducted a review of consecutive overnight ED attendances before and after the introduction of the new legislation to assess the effects of the legislation on our ED workload.

## METHODS

### Design

The study was designed as a retrospective cohort study over two time periods, before and after the introduction of the new UK

alcohol licensing legislation. All adult patients attending the ED overnight during the months of March 2005 and March 2006 were included in the respective cohorts.

### Setting

St Thomas' Hospital is a large inner-city London teaching hospital with 900 inpatient beds. The ED at St Thomas' hospital sees approximately 120 000 new patient attendances each year.

### Study population and data collection

All patients over the age of 16 years who attended the ED between 21:00 and 09:00 during each of the two study periods (1–31 March 2005 and 1–31 March 2006) were included in the analysis. The ED attendance cards, including the London Ambulance Service patient record form (PRF), were individually reviewed by hand for evidence of alcohol ingestion before ED attendance.

We defined an alcohol-related attendance as having occurred if there was documentation in the patient's ED attendance card or PRF of alcohol consumption before attendance, or documentation in the ED attendance card of alcohol intoxication in relation to the patient's physical examination or final diagnosis. We excluded patients with alcohol-related medical problems who had no documented evidence of alcohol consumption before attendance.

For all alcohol-related attendances the following information was recorded: age, sex, reason for attendance (injury or non-injury), reported assault or no assault, and patient outcome (admission to hospital or discharge).

**Abbreviations:** ED, emergency department; PRF, patient record form

**Table 1** Comparison of demographics of the alcohol related attendees between March 2005 and March 2006

	Total	March 2005	March 2006	p Value
Number of alcohol related attendances	329	79	250	
Median age (IQR)	–	27 (23–36)	31 (23–42)	0.06
Male sex (%)	233 (70.8%)	49 (62.2%)	184 (73.6%)	0.05

IQR, interquartile range.

### Data analysis

All data were entered on to an Excel (Microsoft Corp, Seattle, Washington, USA) database. The primary outcome measure was change in the number and percentage of alcohol related attendances to the ED between the first and second study periods. Secondary outcome measures were: number and percentage of alcohol-related attendances as a consequence of assault, and as a consequence of injury; and number and percentage of alcohol-related attendances resulting in admission to hospital. All secondary outcome measures were compared between the two study periods.

Comparison of the number of alcohol related attendances to the ED between the two study periods was done using a two-sample proportion test. Hypothesis testing with the categorical variables (for example, sex, assault, injury, hospital admission) was also done using a two-sample proportion test. Differences between the two time periods in median ages among the ED patients categorised as having an alcohol related attendance was assessed using the Mann–Whitney U test. We used this non-parametric test as the distribution of ages in our study populations was positively skewed. Differences were considered significant at the 5% level.

### RESULTS

During the period 1–31 March 2005 there were a total of 10 290 attendances to the ED. In comparison, during 1–31 March 2006 there were a total of 9978 attendances, representing a reduction of 3%. In March 2005 there were 2736 overnight attendances to the ED compared to 3135 in March 2006, a rise of 15%.

Of the 2736 ED attendances in March 2005, 79 (2.9%) were classified as alcohol related, whereas in 2006, 250 (8%) of the total 3135 attendances were alcohol related. This difference in attendances between March 2005 and March 2006 represents a significant increase in the number of patients attending the ED having consumed alcohol (proportion test,  $p < 0.001$ ).

The demographics of those with alcohol related attendances are outlined in table 1. The median age of patients who attended the ED in March 2005 and 2006 after consuming alcohol were 27 years and 31 years, respectively ( $p = 0.06$ ). The table also shows that there was a slightly higher proportion of male alcohol related attendances in 2006 (73.6% vs 62.2%,  $p = 0.05$ ).

The primary and secondary outcome measures for the two study periods are shown in table 2. There were significant increases in the percentage of alcohol related attendances as a

consequence of injury ( $p < 0.001$ ) and assault ( $p = 0.002$ ) between March 2005 and March 2006. Additionally there was a significant increase in admission rates for alcohol related attendances ( $p < 0.001$ ) between the two study periods.

### DISCUSSION

We have found that overnight alcohol related attendances to St Thomas' Hospital ED increased significantly between March 2005 and March 2006. It is likely that this increase is at least in part related to the introduction of new UK alcohol licensing legislation, an event certain to have an important effect on alcohol consumption, which occurred between the two study periods.<sup>6</sup> The increase in alcohol related problems we have recorded is the opposite of the effect the legislation was designed to produce. In addition, our data suggest that, to date, the new legislation has also failed to achieve its intended improvement in public safety and reduction in alcohol related crime and disorder, as we found a significant increase in alcohol related assaults, injuries and alcohol related hospital admissions between study periods.

Another factor which could account for the rise in alcohol related attendances we found is the relatively low number of patients who presented to the ED after consuming alcohol in March 2005. Rates of alcohol use among patients attending EDs vary widely, with some investigators reporting that as many as 35% of attendances relate to alcohol misuse.<sup>3,7</sup> Part of the reason for the apparent variation in rates of "alcohol related attendances" is the variable use of the term. Some authors use the term to describe any medical or surgical condition that may be related to the ingestion of alcohol—for example, pancreatitis, alcoholic liver disease, delirium tremens or alcohol associated seizures. For the purposes of our study we used the term "alcohol related attendance" to indicate only patients who had documented evidence of alcohol consumption before attendance, which could contribute to the low percentage of alcohol related attendances found in our study. In addition, inconsequential consumption of alcohol before attendance is not routinely documented by doctors in the ED at St Thomas' hospital; therefore, this type of attendance was not included in the study numbers.

In 2006 we found that ED patients who had consumed alcohol were slightly older and more likely to be men compared with those in 2005. Although age and sex may influence alcohol consumption, it is very unlikely that the marginal demographic differences we found between our study cohorts could have accounted for the differences in alcohol related presentations we observed between the two time periods.

A potential source of the increase in alcohol related attendances could have been increased awareness of alcohol related issues by the medical staff between the two time periods. However, there were no additional availability of alcohol resources in the ED nor was there any change in the doctors' educational programme to account for this. In order to avoid introducing bias we did not use a proforma for the study, nor did we make any of the doctors within the department aware of the study. Additionally, we chose a time period which was several months after the introduction of the new legislation in an attempt to minimise the influence of any media coverage on the ED doctors' practice.

The ED at St Thomas' is one of the largest in the UK, and is located close to the city centre where there are many licensed premises. Therefore, although from a single centre study, we feel that our main findings are likely to be representative of inner-city EDs in the UK. If reproduced over longer time periods and across the UK, as a whole the additional numbers of patients presenting to EDs with alcohol related problems could be very substantial.

**Table 2** Outcome measures

Characteristics	March 2005 Number (%)	March 2006 Number (%)	p Value
Total number of attendances	2736	3135	
Number of alcohol related attendances	79 (2.9)	250 (8.0)	<0.001
Alcohol related assault	27 (0.99)	62 (1.98)	0.002
Alcohol related injury	44 (1.61)	129 (4.11)	<0.001
Alcohol related hospital admission	24 (0.88)	71 (2.46)	<0.001

In conclusion, we have found that overnight ED attendances in patients having consumed alcohol increased rather than decreased after introduction of new alcohol licensing legislation in the UK. Compounding this increase in numbers of patients is the difficulty in managing patients who have consumed alcohol and the increased resources they require. Larger and longer term assessments of the effects of the new licensing legislation are required if healthcare workers and the police are to be adequately prepared to deal with the health and societal problems caused by alcohol.

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